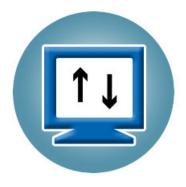
DB-Gate™

The Remote Database Access Component of iSecurity





User Manual
Version 1.5



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Record your Product Authorization Code Here:	
Computer Model:	n en
Serial Number:	
Authorization Code	

Table of Contents

About This Manual	1
Product Documentation Overview	1
Printed Materials	1
Online Help	
Typography Conventions	
Other iSecurity Products	2
Chapter 1: Introducing DB-Gate	Δ
System Requirements	
Starting DB-Gate	
Why You Need DB-Gate	
Typical Remote Access Limitations	
DB-Gate Benefits	
DB-Gate Restrictions	
Native OS/400 Text Based User Interface	
Menus	
Data Entry Screens	
New Features and Functionality	
Version 1.5	8
Chapter 2: Remote DB Definitions	<u> </u>
Work with Directory Entries	
Modifying a Directory Entry	
Copying an Existing Directory Entry	
Creating a New Directory Entry	12
Chapter 3: DB Drivers	13
Working with Database Drivers	
Modifying a DB Driver	
Copying a DB Driver	
Adding a New DB Driver	
Deleting a DB Driver	
Drivers & Licenses Folders	18
Chapter 4: DB-Gate Log	19
Chapter 5: Remote User ID	22
Injection of Remote User IDs	
Modifying a Server Authentication Entry	
Adding a New Server Authentication Entry	
·	
Chapter 6: Test Drive	
Starting SQL	
Working with SOL Program Sources	26

Chapter 7: System Configuration	27
General Definitions	
Log Retention	
Setting DB Log Retention Parameters	
Chapter 8: Maintenance Menu	31
Display DB-Gate Definitions	31
Work with Operators	
Check Locks	
Add DB-Gate to Java CLASSPATH	
Journal Definition Files	
Adding a Journal	
Removing Journal	
Displaying a Journal	39
Uninstall	39
Appendix A: JDBC Driver for Excel, CSV, ODS and Text Files	40
Adding an Entry	
Working with the JDBC Driver	

About This Manual

This user guide is intended for system administrators and security administrators responsible for the implementation and management of security on AS400 systems. However, any user with basic knowledge of AS400 operations will be able to make full use of this product after reading this book.

Product Documentation Overview

Raz-Lee takes customer satisfaction seriously. Our products are designed for ease of use by personnel at all skill levels, especially those with minimal AS400 experience. The documentation package includes a variety of materials to get you familiar with this software quickly and effectively.

Printed Materials

This user guide is the only printed documentation necessary for understanding this product. It is available in user-friendly PDF format and may be displayed or printed using Adobe Acrobat Reader version 4.0 or higher. Acrobat Reader is included on the product CD-ROM.

This manual contains concise explanations of the various product features as well as step-by-step instructions for using and configuring the product.

Online Help

AS400 context sensitive help is available at any time by pressing the **F1** key. A help window appears containing explanatory text that relates to the function or option currently in use. Online help will shortly be available in Windows help format for viewing on a PC with terminal emulation.

Typography Conventions

- Menu options, field names, and function key names are written in **Bold**.
- References to chapters or sections are written in *Italic*.
- OS/400 commands and system messages are written in **Bold Italic**.
- Key combinations are separated by a dash, for example: Shift-Tab.
- Emphasis is written in **Times New Roman bold**.

Other iSecurity Products

Raz-Lee's iSecurity is an integrated, state-of-the-art security solution for all System i servers, providing cutting-edge tools for managing all aspects of network access, data, and audit security. Its individual components work together transparently, providing comprehensive "out-of-the-box" security.

Other iSecurity products include:



Change Tracker

Change Tracker automatically tracks modifications in the software and file structure within production libraries. Changes are tracked at both the object and source levels. It does not require any special actions by programmers.



COMMAND

COMMAND monitors and filters commands and its parameters before they are run, enabling you to control each parameter, qualifier or element, in conjunction with the context in which it is about to run. Options include Allow, Allow with Changes and Reject. It includes a comprehensive log, proactive alerting and easily integrates with SIEM.



AOD

Authority on Demand provides an advanced solution for emergency access to critical application data and processes, which is one of the most common security slips in System i (AS/400) audits. Current manual approaches to such situations are not only error-prone, but do not comply with regulations and often-stringent auditor security requirements.



Capture

Capture silently captures and documents user screens for tracking and monitoring, without any effects on system performance. It also preserves job logs for subsequent review. Capture can run in playback mode and can be used to search within texts.



AP-Journal

AP-Journal automatically manages database changes by documenting and reporting exceptions made to the database journal.



Anti-Virus

Anti-Virus is a dedicated iSeries-specific product engineered to provide full protection to the server, its file contents, and resident iSeries or System i dedicated software.



Visualizer

Visualizer is an advanced DWH statistical tool with state-of-the-art technology. This solution provides security-related data analysis in GUI and operates on summarized files; hence, it gives immediate answers regardless of the amount of security data being accumulated.



Firewall

Firewall protects and secures all types of access, to and from the System i, within or outside the organization, under all types of communication protocols. Firewall manages user profile status, secures entry via pre-defined entry points, and profiles activity by time. Its Best Fit algorithm determines the validity of any security-related action, hence significantly decreasing system burden while not compromising security.



Audit

Audit is a security auditing solution that monitors System i events in real-time. It includes a powerful query generator plus a large number of predefined reports. Audit can also trigger customized responses to security threats by means of the integrated script processor contained in Action.



Action

Action automatically intercepts and responds to security breaches, system activity events, QHST contents, and other message queues. Inquiring messages can be automatically answered. Alerts are sent by e-mail, SMS, pagers, or the message queues. Command scripts with replacement variables perform customized corrective actions, such as terminating a user session or disabling a user profile.



View

View is a unique, patent-pending, field-level solution that hides sensitive fields and records from restricted users. This innovative solution hides credit card numbers, customer names, etc. Restricted users see asterisks or zeros instead of real values. View requires no change in existing applications. It works for both SQL and traditional I/O.



Screen

Screen protects unattended terminals and PC workstations from unauthorized use. It provides adjustable, terminal- and user-specific timeout capabilities.



Password

Password provides a first-tier wall of defense for users by ensuring that user passwords cannot be easily cracked.



Assessment

Assessment checks your ports, sign-on attributes, user privileges, passwords, terminals, and more. Results are instantly provided, with a score of your current network security status with its present policy compared to the network if iSecurity were in place.

Chapter 1: Introducing DB-Gate

Raz-Lee Security's DB-Gate, part of the iSecurity suite, lets you open concurrent and transparent SQL connections to numerous types of remote data sources and databases. You can do this on any IBM or non-IBM platform using STRSQL and compile using CRTSQL for programs which refer to these databases.

DB-Gate is a client-only product, so it saves you both money and time you would otherwise require to integrate new hardware or set up a complicated API.

System Requirements

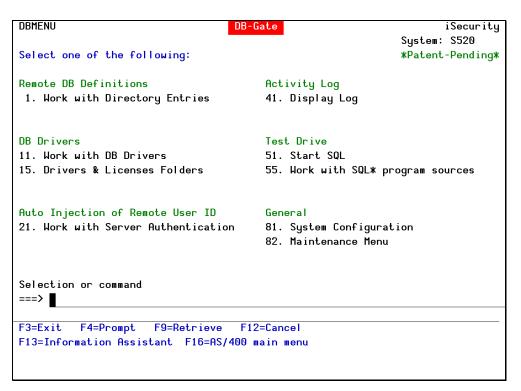
DB-Gate requires the V5R3 operating system or higher.

Starting DB-Gate

To begin using DB-Gate, type *STRDB* on any command line. The main screen is displayed.

You can access the different features from the main DB-Gate screen. The various feature groups are described in the following chapters:

- Remote DB Definitions
- DB Drivers
- Activity Log
- General Configuration and Maintenance



Main DB-Gate Screen

Why You Need DB-Gate

IBM AS/400 users often require access to remote, non-DB2 databases that do not support DRDA server behavior, such as Oracle, MS-SQL and Derby. These databases run on various operating systems and use standard languages (i.e. SQL).

Typical Remote Access Limitations

To successfully access remote databases, companies have selected products based on either of the following limited methods:

- Using ambiguous or non-standard APIs that are not defined through RDBDIRE (relational Database Directory Entry) and therefore make no use of an ARD program
- Selecting a client-server configuration that requires additional hardware

These options are cumbersome, require special settings which often prevent users from fully utilizing standard SQL commands on the AS/400 and often include hidden infrastructure costs.

DB-Gate Benefits

- "Opens" the entire non-DB2 spectrum of databases
- Greatly expands programmer's capabilities when working with non-DB2 databases
- Reduces the need for redundant data and ETL (extract, transformation, load) data manipulation products
- Eliminates the need for *SQLPKG, even when accessing another DB2 database (including one on the AS/400)
- Unique technology enables transparent access to any database (MySQL, ORACLE, MS SQL, DB2, Informix, SQLite) or data source (e.g., Excel) which resides on any IBM or non-IBM platform using STRSQL, STRQM or programs in languages such as RPG, Cobol, etc. (compiled using CRTSQL...)
- Integration with the STRSQL lets you prompt to see the Table names, Column names, and more
- Expands IBM i-based DRDA functionality by enabling transparent connectivity with JDBC databases not supported by DRDA
- Uses standard SQL syntax and is based upon standard OS/400 functionality so there is virtually no learning curve to get up and running
- Remote Server Authentication that makes use of the IBM Server Authentication Entries, injecting them seamlessly when needed and eliminating the need to remember and re-enter a user name and password for each CONNECT to a remote DB
- Provides detailed traceability logs.

DB-Gate Restrictions

The following functions are not supported:

- Database large objects (BLOBs, CLOBs, DBCLOBs)
- Data links
- User IDs longer than ten characters
- Passwords longer than ten characters
- Stored procedure result sets
- SQL statements longer than 32K
- Stored procedures with Commit on Return
- Scrollable cursors
- Multi-row input
- Extended diagnostics
- RDB aliases

Note about Commitment Control:

When using an ARDPGM, the system enforces the use of commitment control. If for example session attributes for commitment control is set to *NONE, the system will change this setting immediately after the connection.

An RDB entry that is based on ARDPGM is always considered as a remote connection and thus can not be assigned *NONE or *NC for commitment control.

Commitment Control - Help

```
Select the type of commitment control. The possible values are:
```

*NONE or *NC

```
Specifies that commitment control is not used.
Uncommitted changes in other jobs can be seen. If the SQL DROP COLLECTION statement is included in the program, *NONE or *NC must be used. If a relational database is specified on the RDB parameter and the relational database is on a system that is not on an iSeries, *NONE or *NC cannot be specified.
```

Native OS 400 Text Based User Interface

DB-Gate is designed to be a user-friendly product. The user interface follows standard System i CUA conventions. All product features are available via the menus, so you are never required to memorize arcane commands.

Many features are also accessible via the command line, for the convenience of experienced users.

Menus

Product menus allow for easy access to all features with a minimum of keystrokes. Menu option numbering and terminology are consistent throughout this product as well as other Raz-Lee products. To select a menu option, simply type the option number and press Enter. The command line is available from nearly all product menus. If the command line does not appear (and your user profile allows use of the command line), press F10 to display it.

Data Entry Screens

Data entry screens include many convenient features such as:

- Pop-up selection windows
- Convenient option prompts
- Easy-to-read descriptions and explanatory text for all parameters and options

■ Search and filtering with generic text support.

The following describes the different data entry screens.

- To enter data in a field, type the desired text and then press **Enter** or **Field Exit**
- To move from one field to another without changing the contents press **Tab**
- To view options for a data field together with an explanation, press **F4**
- To accept the data displayed on the screen and continue, press **Enter.**

The following function keys may appear on data entry screens.

Function Key	Description
F1 - Help	Display context-sensitive help
F3 - Exit	End the current task and return to the screen or menu from which the task was initiated
F4 - Prompt	Display a list of valid options for the current field or command. For certain data items, a pop-up selection window appears
F6 - Add New	Create a new record or data item
F8 - Print	Print the current report or data item
F9 - Retrieve	Retrieve the previously-entered command
F12 - Cancel	Return to the previous screen or menu without updating

New Features and Functionality

Version 1.5

- Support added for NVARCHAR field type
- Enhancements made to embedded SQL in RPG
- Added Bidi String Type option (-1 = NONE) in RDB entry screen
- The product is bundled with a new JDBC driver for MS Excel (97/2000/XP/2003), CSV, ODF spreadsheet (LibreOffice/OpenOffice) and text files. This driver is an in house development. See Appendix A for a description of how to use it.

Chapter 2: Remote DB Definitions

This chapter describes how to define a remote database. When definitions are activated, they create an RDBDIRE (Remote DB Directory Entry) in the operating system.

Work with Directory Entries

To begin working with directory entries, select **1. Work with Directory Entries** from the main screen. The following Work with Directory Entries screen opens. Directories are marked as Active or --- (deactivated).

```
Work with Directory Entries
Type options, press Enter.
                                        Subset . . .
 1=Select 3=Copy 4=Remove
                               7=Activate 8=Deactivate
Opt Status
             Directory entry
    Active
             CRM
     Active
             SALES
             SHIPMENTS
     Active TESTDB
                                                                     Bottom
F3=Exit F5=Refresh F6=Add new F8=Print
                                                  F12=Cancel
DB Directory Entry deleted.
Relational database directory entry deactivated.
```

Work with Directory Entries

To view a specific subset of drivers, enter the first alphanumeric characters of the driver in the **Subset by driver** field and press **Enter.** The driver list is redisplayed with results that match your query.

Modifying a Directory Entry

You can update the details of a Directory Entry by highlighting it and choosing **1. Select**. The **Modify Directory Entry** screen appears with the selected directory entry filled in.

Once you modify the directory entry, press **Enter**, then press **Enter** again to confirm your changes.

NOTE: You are not able to update the Directory Entry Name or Driver.

	Modify Directory Entry
Directory Entry	_
Port <port> Catalog <catalog></catalog></port>	1433
Schema	AdventureWorks
URL	jdbc:sqlserver:// <host>:<port>;databaseName=<db></db></port></host>
Auto replacments are: <pre></pre>	
Language Support F3=Exit F4=Prompt F7=D	

Modify Directory Entry Screen

The following table describes the detailed information you enter to create a new DB driver. Some of the parameters may vary depending on the selected driver.

Parameter	Description
Directory Entry	Name of the directory
Active	Y (yes) or N (no)
Driver	The driver you associated with the new entry
Description	Description of the directory (optional)
Log	0=Global default (this value is taken from System Configuration's General Definitions screen) 1=No log (no data is stored) 2=Connect (the log will store a record of each connection and disconnection from a database) 4=All (the log will store all commands sent; when a Fetch command is sent, it will only store the first in the series)
Host or IP	The address used to access the remote database
Port	The port number associated with the above address required for setting up a connection to the remote database
Catalog	If the database requires a Catalog for the connection, specify it here
Schema	The schema for the remote database
Database	Database name
Additional parameters: SID in this example	Up to four different parameters, based on the selected driver.
URL	Provided by the DB driver provider. May include parameters: <host><ip><user><pwd><catalog><port><schema><adl1-4></adl1-4></schema></port></catalog></pwd></user></ip></host>
Language Support	*AUTO = Default setting *NONE 4-11 = Based on an IBM setting for specific language support. For more details, see:
F8	Replace Driver = Enables users to replace the driver configuration for this RDB entry

Copying an Existing Directory Entry

You can choose to add a new Directory Entry by copying one that already exists. Copying a directory entry is also the only way you can change the name of an existing directory entry.

- 1. To copy an existing directory, highlight it and select **3. Copy.** The **Copy DB Directory Entry** screen appears with the selected directory entry already filled in.
- Enter a new Directory Entry name and press Enter, then press Enter again to confirm
 your new entry. All the existing directory entry details are automatically added and the
 Work with Directory Entries screen is redisplayed with the newly created directory
 entry (deactivated).

Creating a New Directory Entry

You can choose to add a new Directory Entry either by copying one that already exists or by entering all the details on your own.

To add a completely new directory entry, do the following:

- 1. Select **F6.** Add New. The following Add New Directory Entry screen is displayed.
- 2. Type the new Directory Entry alias name. You can also select **F4. Prompt** (when in the **Directory Entry** field) to display the existing Directory Entry list. If you choose one and press **Enter**, it will then be added to the new **Directory Entry** field.
- 3. You must now add an existing driver type. Either type it in or select **F4. Prompt** (when in the **Driver** field) to display a list of the existing DB drivers.
- 4. Click **Enter** to move on to the empty **Add New Directory Entry Details** screen. If the URL had been saved in the driver, it is automatically added. This screen is the same as the Modify Directory Entry Screen above.

	Add New Directory Entry
Directory Entry Driver	
F3=Exit F4=Prompt	F12=Cancel

Add New Directory Entry

Chapter 3: DB Drivers

Working with Database Drivers

A database driver enables you to access a remote database, first by recognizing it and then by establishing a connection with it.

NOTE: DB-Gate comes with pre-installed DB drivers. You may add any number of additional drivers or modify the existing ones.

To set up a database driver, select **11. Work with DB Drivers** from the main menu. The following **Work with DB Drivers** screen with a three-column list of the different types of databases already entered in the system and from which you can choose to create a remote connection. It includes the following details:

- Driver Name
- Available Yes indicated that the driver's **Driver file** parameter (in the Modify DB Driver screen) has been filled in with the path to the jar file on the IFS
- Description for the driver.

```
Work with DB Drivers
                                        Subset by driver . .
Type options, press Enter.
                                             by text . . . .
 1=Select
            3=Copy
                     4=Delete 8=Driver page
Opt Driver
            Available
AS400DB2
               Yes DB2 on OS/400 platform
   CACHE
                   Cache
   DAFFODILLO -
                   DaffodilDB Local
   DAFFODILSR -
                   DaffodilDB Server
   DB2
               Yes DB2 for Windows/Linux
   DB2JDBC4
               Yes DB2 for Windows/Linux
   DERBY
               Yes JavaDB/Derby
   FIREBIRD
               Yes Firebird
   FRONTBASE
              Yes FrontBase
   HSQLDB
               Yes HSQLDB
   HSQLDBEMBD Yes HSQLDB Embedded
   H2 EMBED
               Yes H2 Database Engine (Embedded)
   H2 MEM
               Yes H2 Database Engine (In memory mode)
   H2 SERVER
               Yes H2 Database Engine (Server mode)
                                                                     More...
F3=Exit
           F6=Add new
                        F8=Print
                                    F12=Cancel
```

Work with DB Drivers Screen

The following driver configurations are currently supplied alongside the product:

■ Cache	■ MS JDBC
■ Daffodil	■ MS SQL 2005
■ DB2 for Windows/Linux	■ MySQL
■ JavaDB/Derby	■ Oracle
■ Firebird	■ Pervasive
■ Frontbase	■ PointBase
■ HSQLDB	■ PostgreSQL
■ Informix	■ Sybase SQL Anywhere
■ Mimer	■ Sqlite
■ MS Excel	■ Sybase ASE

If the URL for the driver manufacturer has been saved within the driver's details, you can open the driver's webpage in your browser and read detailed information on the database. To do this, select **8. Driver page** and then press **Enter**.

To view a specific subset of drivers, do one of the following:

- In the **Subset by driver** field, at the top right of the screen, enter the first alphanumeric characters of the driver and press **Enter.** The driver list is redisplayed with results that match your query.
- In the **Subset by text** field, enter any alphanumeric characters you want to match in either the **Driver Name** or **Description** fields and press **Enter.** The driver list is redisplayed with results that match your query.

Modifying a DB Driver

To modify a DB driver, do the following:

- 1. Highlight the DB driver you want to update and press **1. Select**, then press **Enter**. The **Modify DB Driver** screen opens with the driver's details.
- 2. Update the fields, then press **Enter**. A confirmation message appears asking if you want to modify any of the entries.
- 3. Press **Enter** again to save the changes to the driver.

From within the driver page, you can view open the URL for the driver manufacturer to read detailed information on the DB driver by selecting **F7. Driver page**.

To restore the default settings of the current driver, select **F9. Restore Default.**

	Modify [DB Driver	
Driver	DB2 DB2 for A	lindows/Linux	
Driver file	/iSecurity/DB-Gate/D	Orivers/db2jcc.jar	
Class	com.ibm.db2.jcc.DB2[Jriver	
Driver page	http://www-306.ibm.c	com/software/data/db2/java	
Default port	50000		
Additional parms	Label	Possible values	
Parm 1 <adl1></adl1>			
Parm 2 <adl2></adl2>			
Parm 3 (adl3)			
Parm 4 <adl4> URL dft schema .</adl4>	jdbc:db2:// <host>:<p< td=""><td>eest V/dh</td><td></td></p<></host>	eest V/dh	
Std replacments:	June. unz. // Choses. Ch	ource/ (db)	
<host><db></db></host>			
<pre><catalog><port></port></catalog></pre>			
<pre><schema><adl1-4></adl1-4></schema></pre>			
F3=Exit	F7=Driver page	F9=Restore Default	F12=Cancel

Modify DB Driver Screen

The following table describes the information in the DB driver screen.

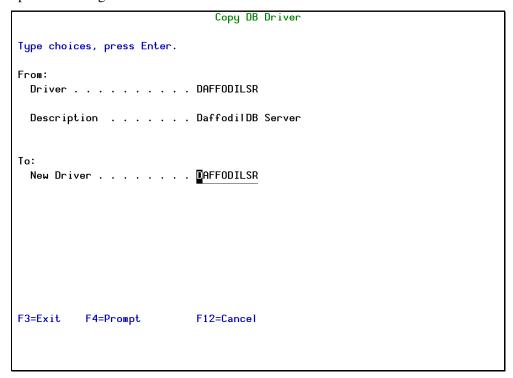
Parameter	Description
Driver	Driver's name and description. It will appear in the DB Drivers list when configuring a connection.
Driver file	Path to the jar file on the IFS that contains the JDBC driver for this database.
Class	JDBC driver class name.
Driver page	URL for the driver developer's webpage.
Default port	The default port to use when setting up a connection.
Additional Parameters	You may define up to four parameters which are specific for this driver. The definition includes the label, as well as a short explanation or the possible values. Parameters which are defined here will be displayed when this driver is selected.

Additional Commands	
F4	When in the Driver field, displays a Select DB Driver window with the option to select a specific DB Driver. After entering 1. Select, the window closes and your selection is displayed in the Driver field.
F7	Once the Driver page has been entered, selecting F7 opens the URL in your default browser.
F9	Restores the original definition of a driver if it was supplied alongside the DB-Gate and replaces the current settings.

Copying a DB Driver

To copy a DB driver, do the following:

- 1. Select the DB driver you want to copy and press **1. Copy**, then press **Enter**. The **Copy DB Driver** screen opens with the name and description of the selected driver.
- 2. In the new Driver field, change the name, then press **Enter**.
- 3. After the confirmation message appears asking if you want to modify any of the entries, press **Enter** again to save the new driver.



Copy DB Driver Screen

Adding a New DB Driver

To add a new DB driver, do the following:

- 1. From the **Work with DB Drivers** screen, press **F6**. An empty **Add New DB Driver** screen appears.
- 2. After you complete the fields, press **Enter**.
- 3. After the confirmation message appears asking if you want to modify any of the entries, press **Enter** again to save the new DB driver.

Deleting a DB Driver

To delete a DB driver from the list, do the following:

- 1. Select the DB driver and then select **4. Delete**. The driver's page is displayed.
- 2. Press **Enter** to confirm the delete request. The driver is deleted.

Drivers & Licenses Folders

To view and update a connection to a remote database, select **15. Drivers & Licenses Folders** from the main screen. The **Work with Object Links** screen opens. This resource screen lets you see the paths to the third party drivers and their licenses.

```
Work with Object Links
Directory . . . . : /iSecurity/DB-Gate/Drivers/./.
Type options, press Enter.
 2=Edit
          3=Copy
                   4=Remove
                               5=Display
                                                       8=Display attributes
                                           7=Rename
 11=Change current directory ...
Opt
      Object link
                             Type
                                               Attribute
                                                            Text
                             DIR
                             DIR
      db2
                             DIR
      derby
                             DIR
      excel
                             DIR
      firebird
                             DIR
                             DIR
      hsql db
      h2sql
                             DIR
      jtds
                             DIR
                                                                        More...
Parameters or command
===>
F3=Exit F4=Prompt
                      F5=Refresh
                                   F9=Retrieve
                                                 F12=Cancel
                                                               F17=Position to
F22=Display entire field
                                   F23=More options
```

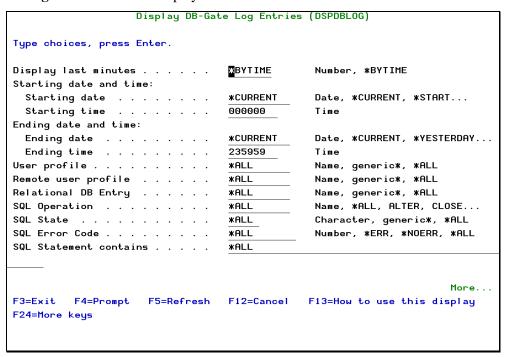
Work with Object Links Screen

The drivers belong to the official owners. They are supplied alongside the product for convenience. Next to each driver you may find the actual license under which it is supplied. These drivers have been downloaded and are supplied by Raz-Lee with the understanding that they may be supplied in this way.

Chapter 4: DB-Gate Log

DB-Gate's Display Log shows the contents of the history log, which saves various data gathered from the different directory entries as you have defined them, in a standard format and using basic filter criteria. The "Backward Glance" feature lets you look at the last several minutes of activity without the need to define specific time or date parameters.

To begin filtering log entries, select **41. Display Log** from the main menu. The following **Display DB-Gate Log Entries** screen is displayed.



Display DB-Gate Log Entries Screen

```
Display DB-Gate Log Entries (DSPDBLOG)
Type choices, press Enter.
SQL Message contains . . . . .
                                  XALL
From job name . . . . . . . .
                                   *ALL
                                                Name, generic*, *ALL
                                                Name, generic*, *ALL
 User . . . . . . . . . . . . .
                                     *ALL
  Number . . . . . . . . . . . . .
                                     *ALL
                                                000000-999999, *ALL
From program name . . . . . .
                                   *ALL
                                                Name, generic*, *ALL
 Library . . . . . . . . . . . .
                                     *ALL
                                                Name, generic*, *ALL
                                   *NOMAX
                                                Number, *NOMAX
Number of records to process . .
Output . . . . . . . . . . . . . . .
                                                *, *PRINT, *OUTFILE
                                                                       Bottom
                                              F13=How to use this display
F3=Exit F4=Prompt
                     F5=Refresh F12=Cancel
F24=More keys
```

Display DB-Gate Log Entries Screen (Cont')

The following table describes the various settings you can define to filter log entries.

Parameter	Description
Display last minutes	Number, *BYTIME This "Backward Glance" feature lets you enter the number of minutes of recent activity you want to view, without the need to define any other time or date parameters. The feature is particularly helpful when trying to clarify the cause of problems
Starting date	Choose from: Current, Start, Yesterday, Week Start, Previous Weeks, Month Start, Previous Months, Year Start, Previous Years, and each day of the week
Starting time	00:00:00 format
Ending date	Same options as Starting date
Ending time	00:00:00 format
User profile	All (default) or a specific user profile on the AS/400
Remote user profile	All (default) or a specific user profile on the remote database
Relational DB Entry	All (default) or a specific remote DB entry

Parameter	Description
SQL Operation	All (default) or a specific SQL operation that is used at the beginning of an SQL statement (e.g., CONNECT, CREATE, DROP, etc.)
SQL State	All (default) or a specific state
SQL Error Code	All (default), a specific error code number or name that describes the problem, or entries without any error code
SQL Statement contains	All (default) or a specific SQL statement
SQL Message contains	All (default) or a specific error message that is associated with an error code
From job name	All (default) or specific job
User	All (default) or specific user
Number	All (default) or a specific number
From program name	All (default) or the program in the AS/400 that created this log
Library	All (default) or specific library of the program name
Number of records to process	No Maximum amount (NOMAX) or a specific number
Output	On the screen (*), Printed on one of the defined printers. If you enter Outfile, you must then define the following additional parameters: File to receive output, Library, Member to receive output, Replace or add records

Once you have defined the filter for the log, press **Enter** to view the results. The following screen is an example of the output displayed.

```
Display DB Gate Log
Log information is available from 22/03/12
■B -> WAREHOUSE PREPARE SQLERR -204 [SQL0204] DEMOPF21 in ILAN type *FILE not
DB -> WAREHOUSE PREPARE SQLERR -104 [SQL0104] Token FROM1 was not valid. Valid
DB -> WAREHOUSE PREPARE SQLERR -204 [SQL0204] DEMOPF21 in ILAN type *FILE not
SASHA -> CRM PREPARE SQLERR 1146 Table 'ilan.demopf21' doesn't exist: select *
SASHA -> CRM PREPARE SQLERR 1146 Table 'ilan.demopf21' doesn't exist: select *
SASHA -> CRM PREPARE SQLERR -1 Table 'ilan.demopf21' doesn't exist: select * f
DB -> WAREHOUSE PREPARE SQLERR -204 [SQL0204] DEMOPF21 in ILAN type *FILE not
DB -> WAREHOUSE PREPARE SQLERR -204 [SQL0204] DEMOPF21 in ILAN type *FILE not
SASHA -> CRM PREPARE SQLERR -204 Table 'ilan.demopf21' doesn't exist: select *
SASHA -> CRM PREPARE SQLERR -204 You have an error in your SQL syntax; check t
SASHA -> CRM PREPARE SQLERR -204 You have an error in your SQL syntax; check t
DB -> WAREHOUSE PREPARE SQLERR -104 [SQL0104] Token FROM1 was not valid. Valid
SASHA -> CRM PREPARE SQLERR -204 You have an error in your SQL syntax; check t
                                                                        Bottom
F3=Exit
                        F10=Entire-Entry
                                                        F17=Top F18=Bottom
```

Display DB-Gate Log

To view further details on the output, select **F10. Entire Entry**. The following screen appears.

```
Additional Entry Information
                                                          System: S520
Remote DB Entry . . . : WAREHOUSE
                                          From User Profile . . : DB
Date sent . . . . : 12/03/22
                                          Time sent . . . . . : 10:23:47
From Job . . . . . . . QZRCSRVS/QUSER/215534
                                                        Program : DBCRTLGR
Remote User . . . . : DB
                                                         Library: SMZB
Remote IP . . . . . :
                                                        SQL Opr.: PREPARE
SQL State . . . . . : 42704
                                                        SQL Err.:
                                                                        204-
SQL Error Message . . : [SQL0204] DEMOPF21 in ILAN type *FILE not found.
SQL Statement:
select * from ilan.demopf21
F3=Exit
                                        F12=Cancel
```

Additional Entry Information from DB-Gate Log

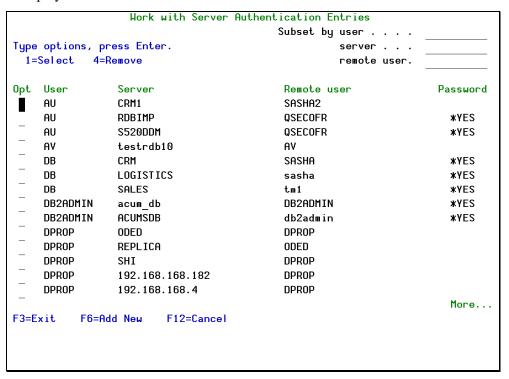
Chapter 5: Remote User ID

This section details how to work with server authentications. The parameters and settings rely on standard IBM commands, such as ADDSVRAUTE and CHGSVRAUTE, which are described in detail in IBM's literature.

At the time that authentication information is required, the data entered here will be used. This eliminates the need for repetitive entries of the authentication information.

Injection of Remote User IDs

To set up auto injection of remote user IDs, select **21. Work with Server Authentication** from the main menu and press **Enter**. The following **Work with Server Authentication Entries** screen is displayed.



Work with Server Authentication Entries Screen

To view a specific subset of server authentication entries, select one of the following subset fields: **User**, **Server** or **Remote User**. Enter the first alphanumeric characters of the entry and press **Enter**. The list is redisplayed with results that match your query.

Modifying a Server Authentication Entry

To modify a server authentication entry, do the following:

- 1. Highlight the server authentication entry that you want to update in the **Work with Server Authentication Entries** screen and press **1. Select**, then press **Enter**.
- 2. When the **Modify User Authentication Entry** screen opens, update the User profile, Server and Remote user ID details displayed.
- 3. When you are done, press **Enter**. After the confirmation message appears, press **Enter** again to save your settings.

Modify User Authentication Entry		
Type choices, press Ent	er.	
User profile	GRM1 SASHA2	
DB-Gate restricts Serve to 10 characters.	er to 18 characters. User and Password are restricted	
F3=Exit	F12=Cancel	

Modify User Authentication Entry Screen

Adding a New Server Authentication Entry

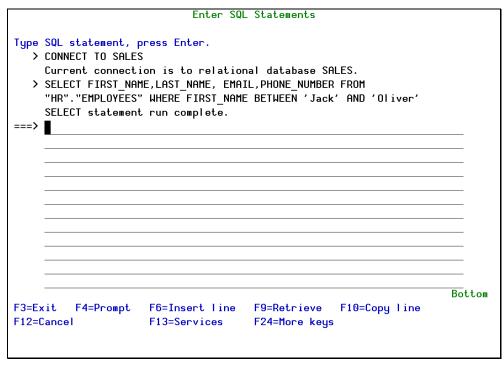
To add a new server authentication entry, press **F6**. **Add New**. An empty **Add User Authentication Entry** screen appears.

Chapter 6: Test Drive

This section includes the various ways you can start SQL and work with SQL programs. These features rely on standard IBM commands, which are described in detail in IBM literature.

Starting SQL

To begin writing SQL commands directly from your AS/400, select **51. Start SQL** from the main menu and press **Enter**. The following **Enter SQL Statements** screen is displayed.



Enter SQL Statements Screen

The Enter SQL Statements display is the main screen for interactive Structured Query Language (SQL). From it you can type and run SQL statements. SQL messages also appear on this screen.

Working with SQL Program Sources

To begin working with SQL Program Sources, select **55. Work with SQL* program sources** from the main screen and press **Enter**. The following **Work with Members Using PDM** screen is displayed.

Work with Members Using P	DM (WRKMBRPDM)
Type choices, press Enter.	
File	*PRV, name*PRV, name, *LIBL, *CURLIB*ALL, name, *generic**ALL, type, *generic*
F3=Exit F4=Prompt F5=Refresh F12=Cancel F24=More keys	Bottom F13=How to use this display

Work with Members Using PDM Screen

Chapter 7: System Configuration

DB-Gate is ready-to-run right out of the box. You should review a few system configuration parameters that control important features prior to using the product for the first time.

It should be pointed out that there is no "typical" or "optimal" configuration for a connectivity product such as DB-Gate. Each installation or application has different operational criteria and security needs. For example, the log requirements for a large manufacturing environment may be quite different from those for a bank, a software developer or a service organization.

To begin system configuration, Select **81. System Configuration** from the main screen and press Enter. The following **DB Directory Entry System Configuration** screen appears.

```
DB Directory Entry System Configuration
                                                            25/03/12 12:18:36
Select one of the following:
DB-Gate
1. General Definitions
 9. Log Retention
                                        General
                                          98. Driver Licenses
Selection ===> ■
                                          99. Copyright Notice
                                       01.0 12-03-20
                                                          44DE466 520 7459
Authorization code . . . . . . . . .
                                       B01203731542
F3=Exit
           F22=Enter Authorization Code
                                                            F12=Cancel
```

DB Directory and System Configuration Screen

NOTE: After you modify any of the parameters accessible from this menu, the message "Modify data, or press Enter" appears upon return to the menu.

General Definitions

To change the global settings of DB-Gate, do the following:

- 1. Select **1. General Definitions** from the **System Configuration** screen. The following **General Definitions** screen appears.
- 2. Enter a **Log level** setting from one of the following options:

Option	Description
1=No log	No data is stored
2=Connect	The log will store a record of each connection and disconnection from a database
4=AII	The log will store all commands sent; when a Fetch command is sent, it will only store the first in the series

General Definit	ions	25/03/12	10:37:16
Type options, press Enter.			
Log level	1=No Log 2=Connects only 4=All	J	
Notes:			
All errors are logged, regardless of this set	ting.		
For 4=All, only the first FETCH is logged.			
F3=Exit F12=Cancel			

General Definitions Screen

NOTE: When you select the **0=Global default** setting for a specific **directory entry**, it will take the setting you define on this screen.

3. When you are done, press **Enter**. After the confirmation message appears, press **Enter** again to save your settings.

Log Retention

Setting DB Log Retention Parameters

Log Retention parameters govern the retention and backup of the DB-Gate history log files. In order to preserve desk storage capacity and improve query response time, you should retain transactions for the minimum period necessary to maintain an effective audit program.

The recommended initial settings are shown below.

To set the log retention periods, do the following:

- 1. Select **9. Log Retention** from the **DB Directory Entry System Configuration** screen. The following **DB Log Retention** screen appears.
- 2. Enter the parameters as defined in the table below.
- 3. When you are done, press **Enter**. After the confirmation message appears, press **Enter** again to save your settings.

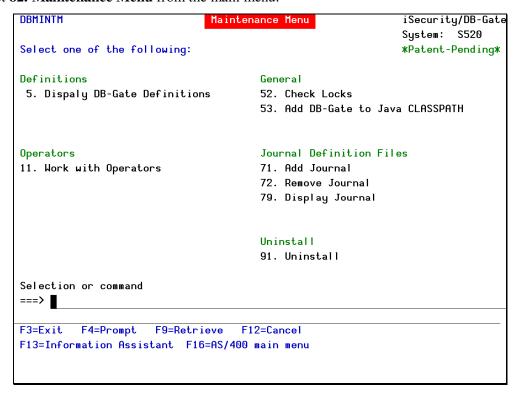
DB Log Retention	25/03/12 10:40:10
Type options, press Enter.	
Data retention period (days) <u>30</u> Backup program for data *NONE Backup program library	Days, 99=*NOMAX Name, *STD, *NONE
You may specify a backup program to run automatic data. This program runs prior to automatic deletiretention period expires.	
The *STD program is SMZB/DBSOURCE DBDBGBKP.	
F3=Exit F12=Cancel	

DB Log Retention Screen

Parameter	Description
Data retention period	The number of days that the queries are retained. At the end of this period, queries are purged from the log. Enter 99 to retain all data indefinitely.
Backup Program for data	Enter the name of the backup program you wish to use, type *STD to use the standard backup program or *NONE for no backup.
Library	Enter the name of the library where it is located.

Chapter 8: Maintenance Menu

The Maintenance Menu lets you set and display global definitions for DB-Gate. To open it, select **82. Maintenance Menu** from the main menu.



Maintenance Menu Screen

Display DB-Gate Definitions

To print the definitions that you entered for DB-Gate, do the following:

- 4. From the Maintenance Menu screen, select **5. Display DB-Gate Definitions**. The following screen appears.
- 5. When you are done, press **Enter**. After the confirmation message appears, press **Enter** again to save your settings.

Display DB-Gat	e Definitions.	(DSPDBDFN)
Type choices, press Enter.		
Report type > From item	*DBENTRY ALL *SAME *DETAILS *	*ALL, *DBENTRY, *DBDRVR Character value, *ALL, *START Character value, *ONLY, *LAST *LIST, *DETAILS *, *PRINT
F3=Exit F4=Prompt F5=Refresh F24=More keys	F12=Cancel	Bottom F13=How to use this display

Display DB-Gate Definitions Screen

Parameter	Description
Report Type	*ALL = All of the following options *DBENTRY = The definitions for the Directory Entries *DBDRVR = The definitions for the DB Drivers
From item	Character value *All *Start = From the beginning of all values
To item	Character value *Only *Last
Format	*List = Short form *Details = Full form
Output	* = Screen *Print = Spool

Work with Operators

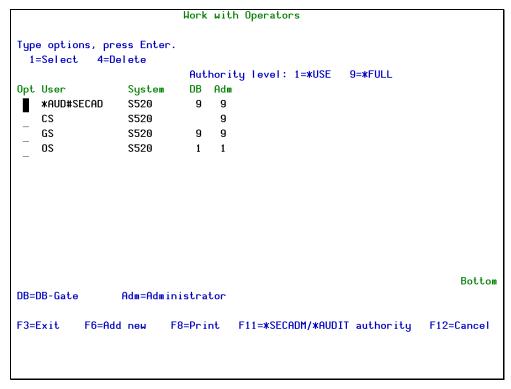
The operators' authorities' management is maintained in one place for this product. It also offers the site a possibility of implementing a second password to protect use of the product.

There is one default group: *AUD#SECAD. It allows all users both *AUDIT and *SECADM special authorities. By default, this group has full access (Read and Write) to all the product's components.

You may add more operators, delete them, and give them authorities and passwords according to your own judgment. You even have the option to make the new operators' definitions apply to all your systems; therefore, upon import, they will work on every system.

To view existing operator's authorities and modify them, do the following.

From the Maintenance Menu, select 11. Work with Operators.



Work with Operators

To modify an operator, highlight it and choose 1. Select.

To add a new operator, press **F6**.

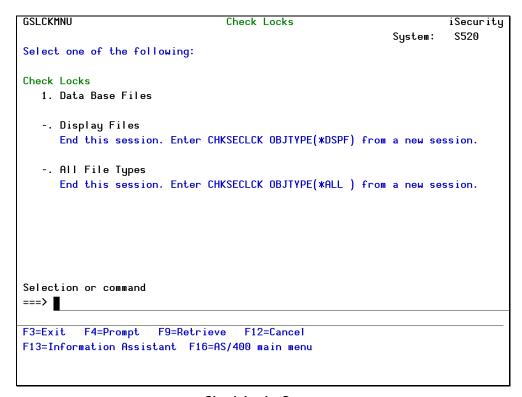
	Modify Operato	r
Type choices, press Enter.		
Operator	*AUD#SECAD S520 *SAME	*ALL, Name Name, *SAME, *BLANK
Authorities by subject: DB-Gate	9	1=*USE, 9=*FULL 1=*USE, 9=*FULL
F3=Exit F12=Cancel		

Modify Operator Screen

Parameter	Description
Operator	The Operator can be a user or group profile. DG Gate provides one type of Operator group: *AUD#SECAD. This group has full access (Read and Write) to all parts of DB-Gate.
System	*ALL Name
Password	Name = Password *SAME = Same as previous password when edited *BLANK = No password
DB-Gate	User of the product 1=*USE (Read authority only) 9=*FULL (Read and Write authority)
Product Administrator	Person responsible for backups, setting authorization codes, etc. 1=*USE (Read authority only) 9=*FULL (Read and Write authority)

Check Locks

To verify if objects are locked in the system, select **52. Check Locks** from the **Maintenance Menu**.



Check Locks Screen

Add DB-Gate to Java CLASSPATH

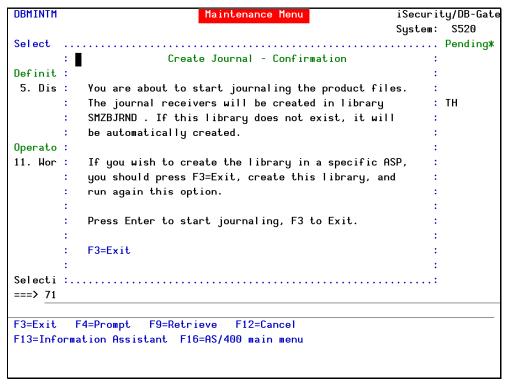
Use this tool if you suspect that the Java components required by the system cannot be found. Using it will define the location of the required components in the CLASSPATH (which is similar to *LIBL for Java).

Journal Definition Files

A journal file records changes made to definitions in the data library.

Adding a Journal

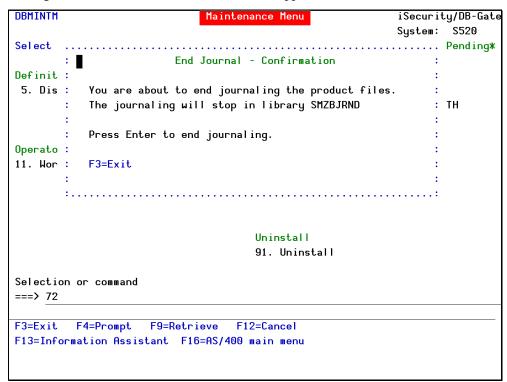
To add a journal, select option **71. Add Journal** from the **Maintenance Menu** screen. The following **Create Journal – Confirmation** screen appears. Press **Enter** to confirm.



Create Journal - Confirmation Screen

Removing Journal

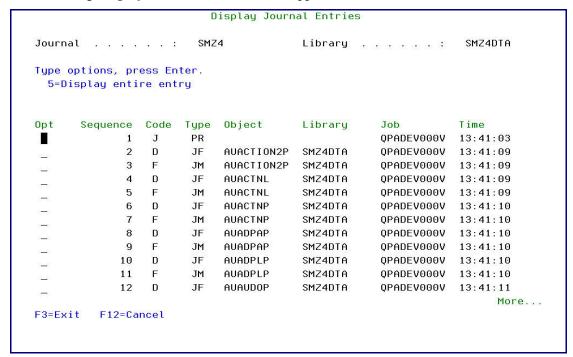
To remove a journal, select option **72. Remove Journal** from the **Maintenance Menu** screen. The following **End Journal – Confirmation** screen appears. Press **Enter** to confirm.



End Journal - Confirmation Screen

Displaying a Journal

To view journaled files, select option **79. Display Journal** from the **Maintenance Menu** screen. The following **Display Journal Entries** screen appears.



Display Journal Entries

Uninstall

Use the Uninstall feature to remove DB-Gate from your computer.

Select **91. Uninstall** from the **Maintenance Menu** and follow the directions that follow on the **Uninstall SECURITYBP** screen.

Appendix A: JDBC Driver for Excel, CSV, ODS and Text Files

Beginning from version 1.5, DB-Gate includes an internal JDBC driver for MS Excel (97/2000/XP/2003), comma-separated values, ODF spreadsheet (LibreOffice/OpenOffice) and text files.

Adding an Entry

- 1. To add an entry, type STRDB, then select option 1. Work with Directory Entries.
- 2. Press F6, give it a name and point it to the supplied PC_FILE driver. Press Enter.
- 3. Set log level and language support if needed and confirm. The entry is activated and available for use.

The supplied driver in option #11 (no editing is needed here):

```
Opt Driver
             Available
    ORACLE_SID
                Yes
                     Oracle SID
   ORACLE_SRV
                Yes
                     Oracle Service
    ORACLE TNS
                Yes
                     Oracle TNS
   PC_FILE Yes CSV. Microsoft Excel. Text. ODF Spreadsheet. XML
    PERVASIVE
                     Pervasive
    POINTBASEL
                     PointBase Local
                Yes
    POINTBASES
                     PointBase Server
                Yes
```

The driver operates based on target file's extension:

- xls for MS Excel
- **csv** for comma-separated values
- ods for ODF spreadsheet
- txt and any other extension is treated as text file.

Working with the JDBC Driver

4. Connect the entry (no user/password is required):

CONNECT TO PC

- 5. Complete the following steps:
 - A. An SQL 'COMMENT ON' statement:

COMMENT ON QGPL.MY_TABLE IS 'file:///tmp/customers.xls'

One can also use:

COMMENT ON QTEMP.MY_TABLE IS...

or

COMMENT ON MY_TABLE IS...

In both cases, the file MY_TABLE is created in an internal QTEMP library. This is <u>not to be confused</u> with the current Job's QTEMP lib.

Also, when issuing the **SELECT** statement the **QTEMP** library <u>must</u> be specified:

SELECT * FROM QTEMP.MY_TABLE

When completed, the file QGPL/MY_TABLE is created and available with the data.

B. An SQL 'SELECT' statement:

SELECT * FROM QGPL.MY_TABLE

The driver accesses the source PC file in a read only manner.

Excel sheets can be accessed by specifying the sheet number in the 'COMMENT ON' statement.

Example:

COMMENT ON QGPL.MY_TABLE IS 'file:///tmp/customers.xls@2'

On this example, the file is **customers.xls** and the query targets the second sheet @2. The first sheet is '@1'.

Tables embedded in ODF Text Documents (LibreOffice/OpenOffice) can be accessed in the same manner as sheets on Excel spreadsheet.

Access Protocols Examples

Function Key	Description
File	Mainly for accessing files in the IFS file system:
	COMMENT ON QGPL.MY_TABLE IS 'file:///tmp/customers.xls'
НТТР	Mainly for the web
	COMMENT ON QGPL.MY_TABLE IS
	'http://www.razlee.info/gui/db_gate/ms.xls'
FTP	COMMENT ON QGPL.MY_TABLE IS
	'ftp://myserver.com/readme.txt'
SMB	MS Windows shares
	COMMENT ON QGPL.MY_TABLE IS
	'smb://192.168.1.181/shareddocs/sales.csv'